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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,190	05/11/2001	Tawassul A. Khan		6162

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EXAMINER
LE, TOAN M

ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 03/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/853,190	Applicant(s) KHAN, TAWASSUL A.	
	Examin r Toan M Le	Art Unit 2862	

-- Th MAILING DATE of this communication app ars on the cover sh et with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. While an inventor may prosecute the application, lack of skill in this field usually acts as a liability in affording the maximum protection for the invention disclosed. Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled preparation and prosecution. The Office cannot aid in selecting an attorney or agent.

2. Applicant is advised of the availability of the publication "Attorneys and Agents Registered to Practice Before the U.S. Patent and Trademark Office." This publication is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

3. The amendment to the claims filed on **12/12/02** does not comply with the requirements of 37 CFR 1.121(c) because of (1) below. Amendments to the claims filed after March 1, 2001 must comply with 37 CFR 1.121(c) which states:

> (c) Claims.
>
> (1) Amendment by rewriting, directions to cancel or add: Amendments to a claim must be made by rewriting such claim with all changes (e.g., additions, deletions, modifications) included. The rewriting of a claim (with the same number) will be construed as directing the cancellation of the previous version of that claim. A claim may also be canceled by an instruction.
>
> (i) A rewritten or newly added claim must be in clean form, that is, without markings to indicate the changes that have been made. A parenthetical expression should follow the claim number

indicating the status of the claim as amended or newly added (e.g., "amended," "twice amended," or "new").

(ii) If a claim is amended by rewriting such claim with the same number, the amendment must be accompanied by another version of the rewritten claim, on one or more pages separate from the amendment, marked up to show all the changes relative to the previous version of that claim. A parenthetical expression should follow the claim number indicating the status of the claim, e.g., "amended," "twice amended," etc. The parenthetical expression "amended," "twice amended," etc. should be the same for both the clean version of the claim under paragraph (c)(1)(i) of this section and the marked up version under this paragraph. The changes may be shown by brackets (for deleted matter) or underlining (for added matter), or by any equivalent marking system. A marked up version does not have to be supplied for an added claim or a canceled claim as it is sufficient to state that a particular claim has been added, or canceled.

(2) A claim canceled by amendment (deleted in its entirety) may be reinstated only by a subsequent amendment presenting the claim as a new claim with a new claim number.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 1, in lines 2-3, "and estimating the bulk permeability of a reservoir formation between seismic transmitters and seismic receivers", it is not clear pointing out the position of the transmitters and receivers related to the reservoir formation.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5 and 8-9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. **6,175,536**. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the method described in the U.S. Patent No. 6,175,536 for determining in-situ bulk tortuosity and bulk permeability of a reservoir formation.

Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. **6,175,536** in view of Stearns.

Referring to claim 6, '536 does not disclose the bulk tortuosity estimated as Vdrag = Vfluid/$\sqrt{}$ T where T is tortuosity.

Stearns discloses the bulk tortuosity estimated as Vdrag = Vfluid/$\sqrt{}$ T where T is tortuosity (equation 3).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the method for determining the bulk tortuosity as described in the Stearns reference into the method of '536 to have more accurate value of in-situ bulk tortuosity of a reservoir formation.

Claim 7 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. **6,175,536** in view of Liu et al..

Referring to claim 7, '536 does not disclose bulk permeability can be estimated as $K = \varphi r^2 / 8T$.

Liu et al. discloses bulk permeability can be estimated as $K = \varphi r^2 / 8T$ (col. 15, lines 37-60).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the method described in the Liu et al. reference into the method of '536 to have more accurate value of bulk permeability of a reservoir formation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khan in view of Stearns and further in view of Liu et al..

Referring to claims 1-9, Khan discloses a method for determining properties of a reservoir formation connected between two wells and between two depth points in the well comprising: transmitting a monofrequency signal generated by seismic transmitters; analyzing the spectral content of the received signal; identifying the side lobes of the monofrequency signal that was transmitted; the frequency of the side lobes represents (F-Fdrag) and (F+Fdrag) where F is the monofrequency and Fdrag is the frequency of the 'Drag Wave'; calculating the velocity of the 'Drag Wave' in which Fdrag/F = Vdrag/(V-Vdrag) where Fdrag is the frequency of the 'Drag wave', F is the monofrequency, Vdrag is the velocity of the 'Drag Wave' and V is the velocity of the monofrequency signal (col. 6, lines 46-55; col. 7, lines 34-59; and col. 8, lines 1-4; figures 1-4).

Khan does not teach the bulk tortuosity estimated as $Vdrag = Vfluid/\sqrt{T}$ where T is tortuosity or bulk permeability as $K = \varphi r^2 / 8T$.

Stearns discloses the bulk tortuosity estimated as $Vdrag = Vfluid/\sqrt{T}$ where T is tortuosity (equation 3).

Stearns does not disclose the bulk permeability can be estimated as $K = \varphi r^2 / 8T$.

Liu et al. disclose the bulk permeability can be estimated as $K = \varphi r^2 / 8T$ (col. 15, lines 37-60).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the method of estimating the bulk tortuosity and permeability as described in the Stearns and Liu et al. references respectively into the method of Khan to have more accurate value of bulk tortuosity and permeability of a reservoir formation.

Remarks:

Response to Arguments

Applicant's arguments filed on 12/12/02 have been fully considered but they are not persuasive.

Referring to claims 1-9, applicant argues that "'536 does not disclose a method for determining the frequency, velocity or amplitude of the Drag wave because the disclosed method uses two frequencies instead of a monofrequency".

'536 does disclose a method for determining the frequency, velocity or amplitude of the Drag wave because the disclosed method uses two frequencies instead of a monofrequency (col. 6, lines 46-55; figures 2-4).

Applicant further argues that "Stearns does not disclose a method for determining bulk tortuosity".

Stearns does disclose the equation 3 for determining the bulk tortuosity.

Conclusion

THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703)305-4016. The examiner can normally be reached on Monday through Friday from 9:30 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (703)305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-0956.

Toan Le

March 14, 2003

EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
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